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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,667	05/09/2006	Hiroyuki Hokuto	127973	2795
25944	7590	10/04/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER CASTRO, ARNOLD	
			ART UNIT 3747	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,667

Applicant(s)

HOKUTO, HIROYUKI

Examiner

Arnold Castro

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/09/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US/7,269,499) in view of Brehob et al. (US/6,098,585).

Murakami et al. teaches of an engine starting control system of an internal combustion engine including: a plurality of cylinders, each of which has an intake passage injection valve for injecting fuel into an intake passage, and an ignition plug for igniting an air-fuel mixture in a cylinder; and engine stopping means for performing an engine stop of the internal combustion engine when a predetermined condition is satisfied in an operating state of the internal combustion engine, the system comprising: combustion stroke prediction means for predicting a combustion stroke that a cylinder of said internal combustion engine reaches when said internal combustion engine comes to an engine stopped state by said engine stopping means; preliminary fuel injection means for injecting fuel of a predetermined amount for a compression stroke cylinder and expansion stroke cylinder from said intake passage injection valve into the intake passage just before said internal combustion engine comes to an engine stopped state, in the compression/expansion stroke cylinders in which a combustion stroke predicted by said combustion stroke prediction means is a compression/expansion stroke; and

engine starting means for performing an engine start of the internal combustion engine in an engine stopped state by, in an expansion stroke cylinder in which a combustion stroke predicted by said combustion stroke prediction means is an expansion stroke, igniting an air-fuel mixture present in the cylinder by said ignition plug, and then in said compression stroke cylinder, igniting an air-fuel mixture in the cylinder by said ignition plug.

However, Murakami et al does not disclose a cylinder injection valve for injecting fuel into a cylinder.

3. Brehob et al. discloses an internal combustion engine in which a combustion stroke predicted by said combustion stroke prediction means is an expansion stroke, injecting fuel directly in combustion chamber and igniting resulting air-fuel mixture in the cylinder by said ignition plug, and then in said compression stroke cylinder, igniting an air-fuel mixture in the cylinder by said ignition plug.

4. The ratios of fuel between port and direct injection are well within the skill of an artisan of ordinary skill in the art taking into consideration the temperature of engine and the time elapse since shut down etc..

5. Motivation to combine Murakami et al. and Brehob et al. would have been to simply to supplement the fuel lost in time when the motor of Murakami et al was at rest.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold Castro whose telephone number is (571) 272-4839. The examiner can normally be reached on MTWTF 3pm-11pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


AC


STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER